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| APPLICATION NO.                                                                | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--------------------------------------------------------------------------------|-------------|----------------------|---------------------|------------------|
| 09/762,938                                                                     | 04/16/2001  | Yasuo Kamatani       | HAG 116 NP          | 2742             |
| 23995                                                                          | 7590        | 12/08/2003           | EXAMINER            |                  |
| RABIN & Berdo, PC<br>1101 14TH STREET, NW<br>SUITE 500<br>WASHINGTON, DC 20005 |             |                      | JUBA JR, JOHN       |                  |
|                                                                                |             |                      | ART UNIT            | PAPER NUMBER     |
|                                                                                |             |                      | 2872                |                  |

DATE MAILED: 12/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                               |                                 |  |
|------------------------------|-------------------------------|---------------------------------|--|
| <b>Office Action Summary</b> | Application No.<br>09/762,938 | Applicant(s)<br>KAMATANI, YASUO |  |
|                              | Examiner<br>John Juba         | Art Unit<br>2872                |  |

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All   b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

### Attachment(s)

- |                                                                                             |                                                                             |
|---------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                 | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____   |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)        | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Information Disclosure Statement***

The references cited in the Search Report dated August 10, 1999 by the International Search Authority have been considered, but will not be listed on any patent resulting from this application because they were not provided on a separate list in compliance with 37 CFR 1.98(a)(1). In order to have the references printed on such resulting patent, a separate listing, preferably on a PTO-1449 form, must be filed within the set period for reply to this Office action.

### ***Drawings***

Applicant has characterized Figure 6 as a "conventional" apparatus. If the figure represents admitted prior art, a "Prior Art" label would be appropriate.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 2, 6, and 9 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to

which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claims 2, 6, and 9 recite “a beam-splitter for *diffracting*” light [emphasis added], whereas what appears to be disclosed is that the beam splitter (09) *reflects* or *partially reflects* light from the source (06) and *transmits* or *partially transmits* light diffracted by the hologram layer (03). While it is possible for this function to be effected by Bragg-angle diffraction, there appears to be no disclosure of the beam splitter (09) as comprising a Bragg mirror. Instead, what appears to be disclosed is specular reflection by a half-mirror. But this is supposition on the part of the examiner and the specification lacks an adequate written description of *what* is to be made. The examiner believes that having first to *deduce* what is to be made involves undue experimentation and even invention on the part of the artisan. Assuming that one of ordinary skill is to understand that beam splitter (09) is a Bragg reflector (rather than a half-mirror), then there appears to be no description of a way to make the Bragg reflector “split” the incident beam. What appears to be illustrated is a single, zero-order output. While there are other diffractive structures that divide or “split” an incident beam into multiple orders, the disclosed structure does not appear to operate in this manner. Thus, one of ordinary skill is left to deduce what function is truly contemplated and then to experiment to develop a structure that functions in the intended manner.

Claims 2, 6, and 9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 2, 6, and 9 are confusing, ambiguous, or incorrect in reciting a "beam-splitter for diffracting" light. In light of the specification, it is not clear whether the beam-splitter splits light, diffracts light, reflects light, or performs some combination of these functions. As a term of art, a "beam splitter" is generally regarded as directing an input beam into at least two directions, neutrally, chromatically, or based upon polarization. A diffraction grating may operate as a "beam divider" if it directs incident energy into a plurality of different orders. Thus, the recitation of a "beam-splitter" for "diffracting" is believed to be repugnant to the ordinary meaning, and ambiguous as to the function. For the purposes of applying art, the examiner has read the claim as positively reciting the structure as comprising a "beam-splitter", and as meaning that the beam splitter "conveys" incident light by some mechanism.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 4, 5, 7, and 12 – 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Maillot, et al. Noting that the information recording medium may be

formed directly on a reflective substrate (Col. 4, lines 57 – 60), Maillot, et al disclose an information recording layer (16) made from holographic material having a reflective layer (18) on one surface thereof disposed in an apparatus comprising a source (not illustrated) of a coherent laser beam (10) and an optical system (12) arranged to focus the signal light and a reflected reference light so as to record an interference pattern. Insofar as “the recording period for a dot may be 100 nanoseconds” (Col. 5, lines 50 – 55), and insofar as the information is defined by the presence or absence of a grating in a given location (Col. 1, lines 50 – 55), the apparatus of Maillot, et al *inherently* comprises a modulation means for driving a pulse emission of the light source so as to produce a signal in response to an original information signal to be recorded, as recited in claim 1.

With regard to claims 4, 5, 7, and 13 – 16 Maillot, et al anticipate the use of a diode laser with injection current modulation to provide an appropriate reference beam (Col. 8, lines 14 – 18), and anticipate that the readout laser power “should be” adjusted so as to have strength enough to provide a detectable output but little effect on the recorded interference pattern (Col. 6, lines 20 – 25). The reproducing apparatus further comprises a photodetector (34). Although Maillot, et al teach that the *preferred* embodiment is one in which the reflecting layer is removed during readout, they expressly teach that this condition is “not absolutely indispensable” (Col. 5, line 59) so as to anticipate the presence of the reflecting layer during playback.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2, 3, 6, and 8 – 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maillot, et al, in view of Hoshi, et al (U.S. Patent number 5,786,117). As set forth for claims 1 and 4 above, Maillot, et al disclose the invention substantially as claimed. However, Maillot, et al do not disclose the use of a lens actuator, as recited in claims 2 and 6, a *diode* laser for producing the signal light as recited in claim 3 or a (single) apparatus for recording and reproduction, as recited in claims 8 – 11.

In the same field of endeavor, Hoshi, et al disclose an apparatus for recording and playback of digital data from an optical storage medium in which light is focused to a volume of the medium and reflected into the focal volume. Hoshi, et al teach that by judicious arrangement of optical components, recording and reproduction of digital data can be undertaken in a single apparatus. One of ordinary skill would have recognized that the disclosed arrangement provides the facility to access stored information rapidly, without the need to handle the recording medium. Thus, data can be read and verified without the risk of damage to recording medium.

It would have been obvious to one of ordinary skill to arrange the light source and modulation means producing a *signal* light of Maillot, et al in combination with the

detector for reproducing the recorded information in a single apparatus, in the interest of recording and reproducing data without the need to handle the recording medium, as fairly suggested by Hoshi, et al.

With regard to claims 2, 6, and 9, Hoshi, et al teach that such an arrangement will necessitate the use of a collimating lens (3), a beam splitter (7), and a focusing lens (8), and further teach the use of “autofocusing/autotracking control” (Col. 10, lines 13 – 20) to ensure reliable, repeatable results. Maillot, et al acknowledge that some form of tracking servo system will be required (Col. 8, lines 8 – 13). Thus, it appears that the use of a lens actuator would have been obvious in the interest of effecting reliable operation through the use of autofocusing and autotracking, as suggested by Hoshi, et al. With particular regard to claim 9, Maillot, et al employ and lens (32) for the detector as do Hoshi, et al (9). Again (with regard to claim 10), Maillot, et al teach the adjustment or the readout laser power “should be” adjusted so as to have strength enough to provide a detectable output but little effect on the recorded interference pattern (Col. 6, lines 20 – 25).

With regard to claims 3 and 11, Maillot, et al disclose a diode laser for reproducing the recorded information; Hoshi, et al teach that a diode laser (“semiconductor laser” 2) is also a convenient and compact source for forming the signal light. Thus, it appears that one of ordinary skill would have found the use of a diode laser as the source of signal light to have been obvious, insofar as the recorded wavelengths and readout wavelengths are related, and since Hoshi, et al suggest a diode laser as a convenient source.



***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Bjorklund, et al (U.S. Patent number 4,458,345) disclose modulator means in an apparatus for bit-wise recording interference patterns in focal volumes.

H. J. Eichler, et al (*IEEE J. Sel. Topics in Q.E.*) disclose modulator means in an apparatus for bit-wise recording interference patterns in focal volumes.

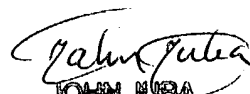
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Juba whose telephone number is (703) 308-4812. The examiner can normally be reached on Mon.-Fri. 9 - 5.

**On or about January 20, 2004, the examiner's new phone number is expected to be (571) 272-2314 at the Alexandria campus.**

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Drew Dunn can be reached on Mon.- Thu., 9 - 5.

The centralized fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306 for *all* communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

  
**JOHN JUBA**  
**PRIMARY EXAMINER**  
**Art Unit 2872**

November 29, 2003